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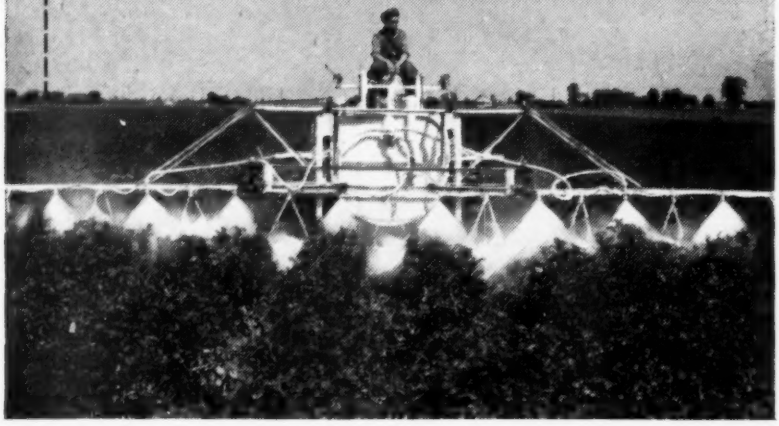

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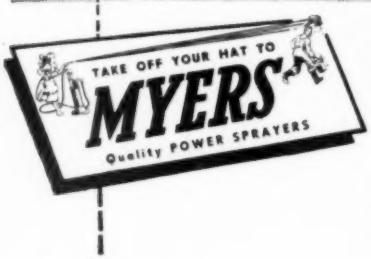

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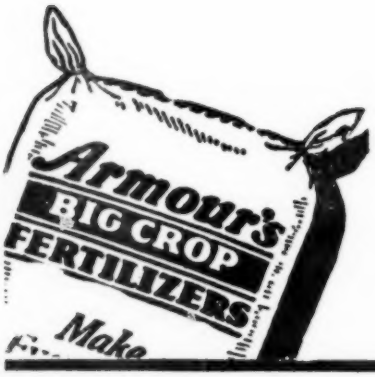

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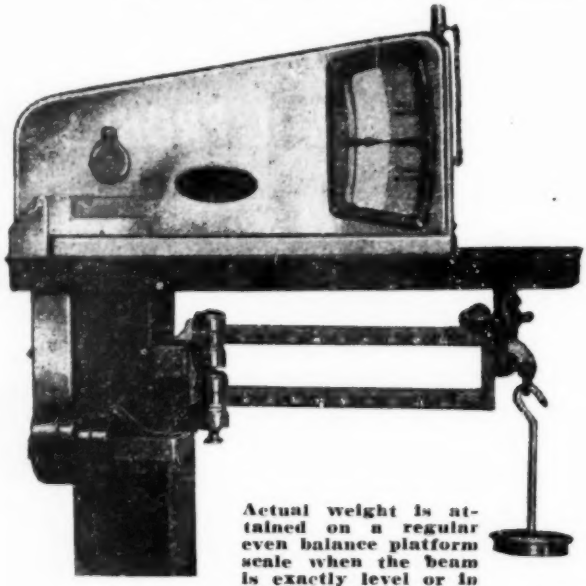

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COMPARATIVE DRY-MATTER CONTENT OF VARIETIES OF IRISH POTATOES GROWN IN LOUISIANA[1]

E. L. LECLERG[2]

United States Department of Agriculture, Baton Rouge, La.

High dry-matter content of tubers of Irish potatoes is important in the South, not only from the standpoint of better cooking quality, but also because such tubers keep better in storage and are more generally satisfactory for seed purposes than those of low dry-matter content.

Therefore, a survey of the dry-matter content of ten commercial varieties was made at Baton Rouge, Louisiana in 1944 and 1945.

METHODS AND MATERIALS

Each year ten varieties were arranged in a randomized-block experiment consisting of 3 replications with plots 25-hills in length. At harvest, duplicate 5-tuber samples were taken from each plot for determination of dry-matter content.

The tubers of each sample were thoroughly wiped to remove dust. Each tuber was cut in half and one-half of each sample was grated over a kitchen vegetable grater. The resultant mass of fine pulp was thoroughly mixed and 10-gram samples of the pulp were weighed into tarred metal cans equipped with tightly fitting lids. Enough 95-per cent alcohol was added to each sample of pulp to cover the mass. The

[1]Cooperative investigations between the Division of Fruit and Vegetable, Crops and Diseases, Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.

[2]Pathologist, United States Department of Agriculture; stationed at Baton Rouge, Louisiana.

samples were then placed in a drying oven for 48 hours after which they were reweighed and the dry weight determined.

Experimental Results

The dry-matter content of the 10 varieties in 1944 and 1945 are given in table 1 and figure 1.

Table 1.—*Percentage dry-matter content of 10 varieties of Irish potatoes at Baton Rouge, Louisiana, in 1944 and 1945.*

Variety	Percentage Dry-Matter Content		
	1944	1945	Average
Green Mountain	20.5	22.4	21.4
Sequoia	19.7	20.9	20.3
Irish Cobbler	19.3	19.2	19.3
Red Warba	18.4	19.4	18.9
Katahdin	17.5	19.8	18.6
Kasota	18.6	18.5	18.6
Warba	18.0	19.2	18.6
Triumph	17.9	17.7	17.8
Chippewa	17.8	16.9	17.3
Pontiac	17.2	16.9	17.1
Difference required for significance	1.2	1.3	0.8

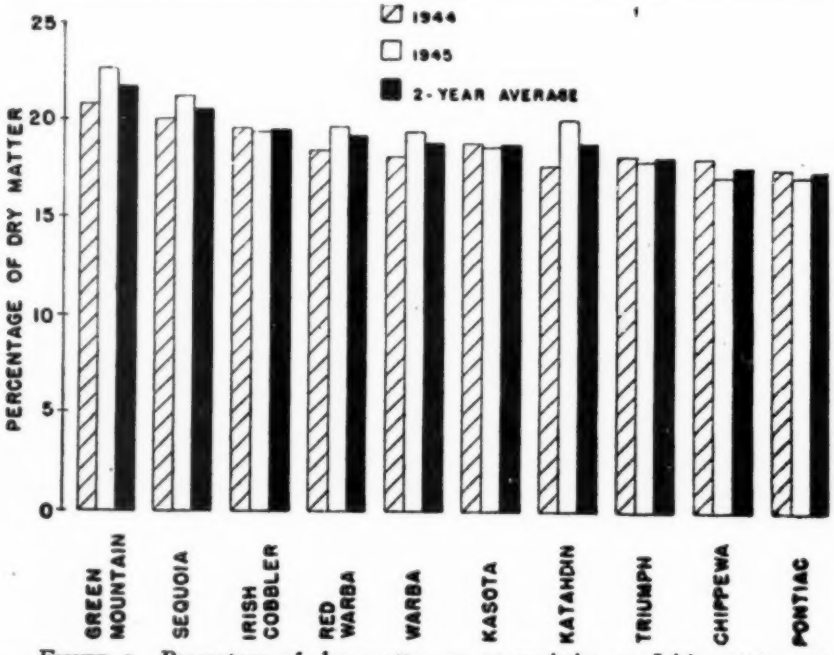

Figure 1. Percentage of dry matter on 10 varieties on Irish potatoes at Baton Rouge, Louisiana in 1944 and 1945.

Analysis of the combined data for the 2 years (table 2) indicates that highly significant differences exist between varieties, years, and the interaction of varieties x years. Thus, some varieties behave in a differential manner with regard to the influence of environmental conditions on the percentage of dry-matter.

Green Mountain and Sequoia were not significantly different in 1944, but in 1945 Green Mountain was superior to all other varieties in having higher dry-matter content. It is of interest to note that Green Mountain, which possesses high dry-matter in areas where it is grown commercially in the North, was also high in the more humid climate of Baton Rouge, Louisiana.

As an average of all 10 varieties the average dry-matter content in 1945 was significantly higher than it was in 1944. However, all varieties did not behave the same in both years as is indicated by the highly significant value of "F" for the interaction of varieties x years (table 2).

TABLE 2.—*Analysis of variance of dry-matter content of* 10 *varieties of Irish potatoes grown at Baton Rouge, Louisiana, in* 1944 *and* 1945.

Source of variation	Degrees of Freedom	Sum of Squares	Mean Squares	F
Replications within tests	4	1.561		
Varieties	9	94.187	10.465	20.24**
Years	1	5.766	5.766	11.15**
Varieties x years	9	15.416	1.713	3.31**
Error	36	18.607	0.517	
	59	135.537		

**Value of "F" exceeds the 1 per cent point.

The fact that the variance for varieties is significantly greater than that for the interaction of varieties x years (table 2) indicates that some varieties are significantly better than others as an average of the 2 years. Thus, the dry-matter content of Green Mountain was significantly higher than any of the other varieties in the test. Likewise, Sequoia was better than any of those below it in the table.

SUMMARY

A study was made to determine the dry-matter content of 10 commercial varieties of Irish potatoes at Baton Rouge, Louisiana, in 1944 and 1945.

Analysis of the data demonstrated that a significant interaction of

varieties x years existed, indicating that some varieties behave in a differential manner with regard to the influence of environmental conditions on the percentage of dry matter.

Green Mountain, under the humid conditions where the tests were made, was of the highest dry-matter content as an average for the two years.

A COMPARISON OF CERTAIN POTATO SPRAYS IN DIFFERENT LOCALITIES IN WEST VIRGINIA[1]

JOHN R. VAUGHN[2]
AND
J. G. LEACH
Department of Plant Pathology and Bacteriology, West Virginia University, Morgantown, W. Va.

INTRODUCTION

West Virginia has greatly varied conditions of rainfall, temperature and topography. Since potatoes are grown in all regions of the state, spray materials must be usable under these varied conditions. The altitude of arable land above sea level varies from 500 to 4000 feet, and the distance from the northernmost point in the state to the southernmost point is about 250 air-line miles. In some localities late blight is found in epiphytotic proportions every year, whereas in other localities it occurs annually but not always in epiphytotic proportions, and in still other localities its occurrence is sporadic.

The practice of spraying and dusting potatoes is increasing throughout the state; Bordeaux mixture and copper-lime dust are in common use. If a material with the adaptability and effectiveness of Bordeaux could be found which would be easier to use, it would have a much wider use than Bordeaux now has, and the control of late blight would be greatly extended. For these reasons tests are being conducted to determine if such a compound exists or will be brought into existence by the manufacturer of chemicals.

MATERIALS AND METHODS

Materials for the test were furnished by various commercial concerns: fixed copper and copper sulfate by the Tennessee Corporation,

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[1]Published with the approval of the Director of the West Virginia Agricultural Experiment Station as Scientific Paper No. 363.

[2]Assistant Plant Pathologist, and Plant Pathologist respectively. West Virginia Agricultural Experiment Station.

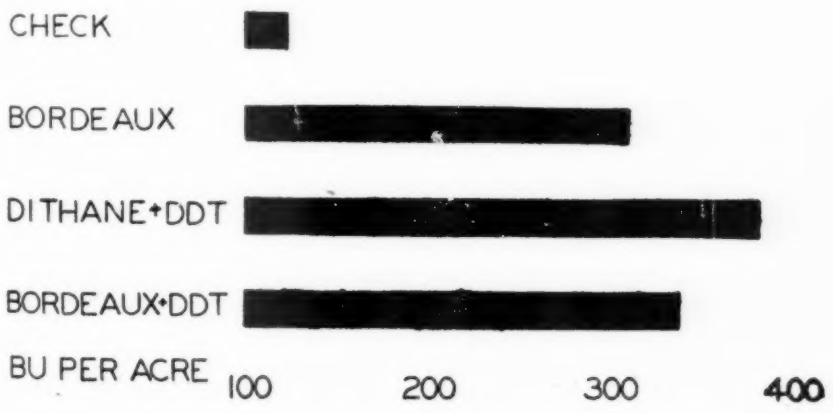
Dithane and Dithane HE 178E by Rohm Haas & Company, DDT by the Dupont Company, and the exploratory chromate compounds by the Carbide and Carbon Chemicals Corporation. The Bordeaux mixture used was of the 8-8-100 formula, DDT at the rate of ¾ pounds actual DDT per 100 gallons of spray, and other chemicals were used at the recommended rates.

Tests were made in four, five and six row plots, 60 feet long,—replicated four times. The results presented here are from two years' tests in one locality, and one year's test in two other localities.

Experimental Results

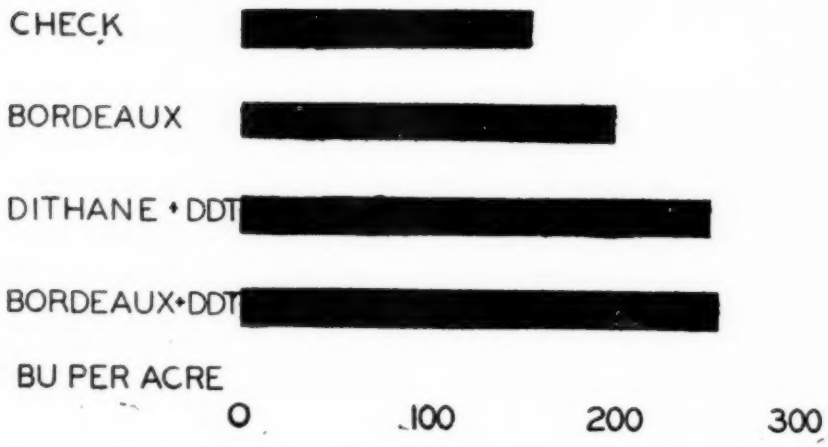
One of the new commercial fungicides which has shown promise in West Virginia is Dithane. This material combined with DDT was compared with Bordeaux mixture with and without DDT. Since Bordeaux has some insecticidal effect against leafhoppers and since the Dithane alone does not show insecticidal effect against leafhoppers, it was believed that a fairer test of the Dithane would be obtained by using it with DDT in all cases. In 1945 at Reedsville, (altitude 1700 feet) the Dithane + DDT plots outyielded Bordeaux + DDT plots by 39 bushels per acre and Bordeaux plots by 58 bushels per acre, as shown in table 1. The check plot yielded about one-third as much as the plot

Table 1.—*Reedsville* 1945.



sprayed with Dithane + DDT. In 1946, at Reedsville, the Bordeaux + DDT plots outyielded the Dithane + DDT plots by 4 bushels per acre, but the Dithane + DDT plots outyielded those receiving Bordeaux alone by 56 bushels per acre. Late blight was present at Reedsville both years and was more severe in 1945 as noted in table 2. At

TABLE 2.—*Reedsville* 1946.

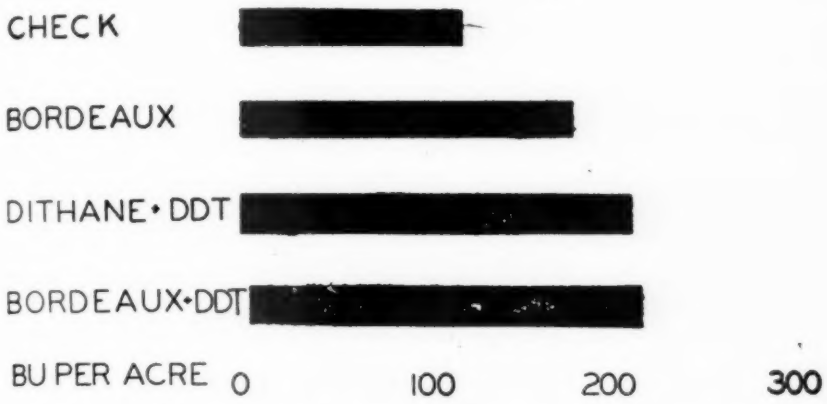


Graham Station (altitude 500 feet), in 1945, the Dithane + DDT plots outyielded the Bordeaux + DDT plots by 21 bushels per acre and outyielded those receiving Bordeaux alone by 26 bushels per acre as revealed in table 3. There was a considerable amount of early blight at Graham Station in 1946 but no late blight occurred. In 1946, at Huttonsville (altitude 2200 feet), plots receiving Bordeaux + DDT outyielded those receiving Dithane + DDT by only 4 bushels per acre, but Dithane + DDT plots outyielded Bordeaux alone by 34 bushels per acre. Late blight was present in epiphytotic proportions as shown in table 4.

TABLE 3.—*Graham Station* 1945.

These results indicated that under the conditions of these experiments, Dithane + DDT was as effective as Bordeaux mixture + DDT.

TABLE 4.—*Huttonsville* 1946.



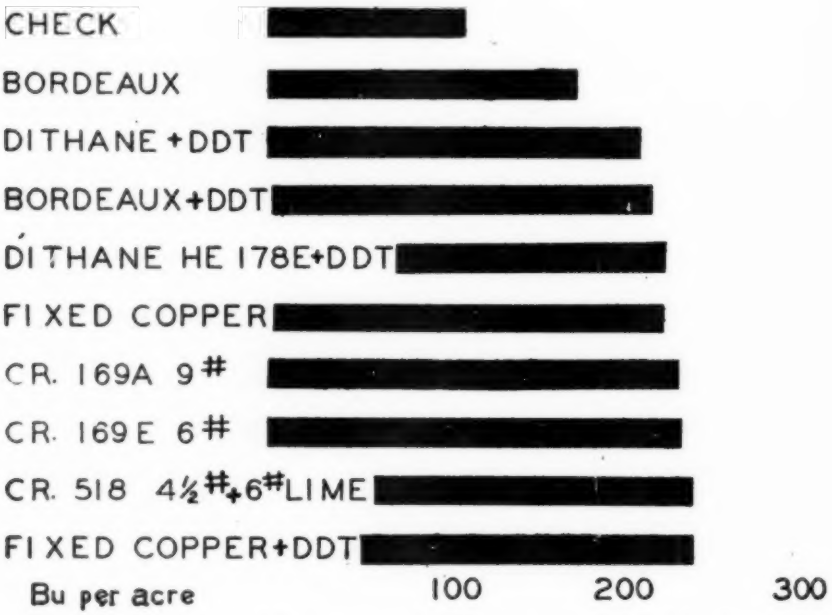
In 1946 at Huttonsville, Dithane + DDT was used on 50 acres of a 90-acre commercial potato field, the remaining 40 acres being sprayed with Bordeaux + DDT. Late blight appeared in the Dithane-sprayed portion of the field about 7 days before it appeared in the Bordeaux-sprayed portion and spread rapidly. In the Bordeaux-sprayed section blight appeared throughout the field but its development was checked. In the Dithane section the blight continued to spread and all plants were killed from 12 to 20 days before they were dead or mature in the Bordeaux section. Yields in the Bordeaux section were greater than those in the Dithane section, although exact figures are not available.

The failure of Dithane + DDT to give the expected control in a large commercial field was surprising. However, the growing conditions at Huttonsville in 1946 offer a possible explanation of the failure. In the first place, there was a continued wet, rainy period which lasted from the middle of June to the middle of August, which probably gave Bordeaux with its better sticking power and greater insolubility, an advantage over the Dithane + DDT. In the second place, there was an unusually heavy epiphytotic of late blight which coincided with the wet and rainy period, starting unusually early and becoming very severe throughout the mountain valley in which Huttonsville is located. This gave the spray material a more severe test than in previous experiments in West Virginia. In the third place, plots in this experiment were surrounded on all sides by other plots most of which had been sprayed with materials which give some protection against late blight. In such a layout it is probable that no one plot so surrounded gets as severe an infestation as it would in a large field.

The spraying at Huttonsville was done with an 8-row power

sprayer,—carrying about 400 pounds pressure and applying about 125 gallons to the acre. The manufacturers of Dithane have since informed us that they recommend using much lower pressures and driving through fields at slower speeds than normally used,—a practice which they claim is more suited to the peculiar properties of Dithane.

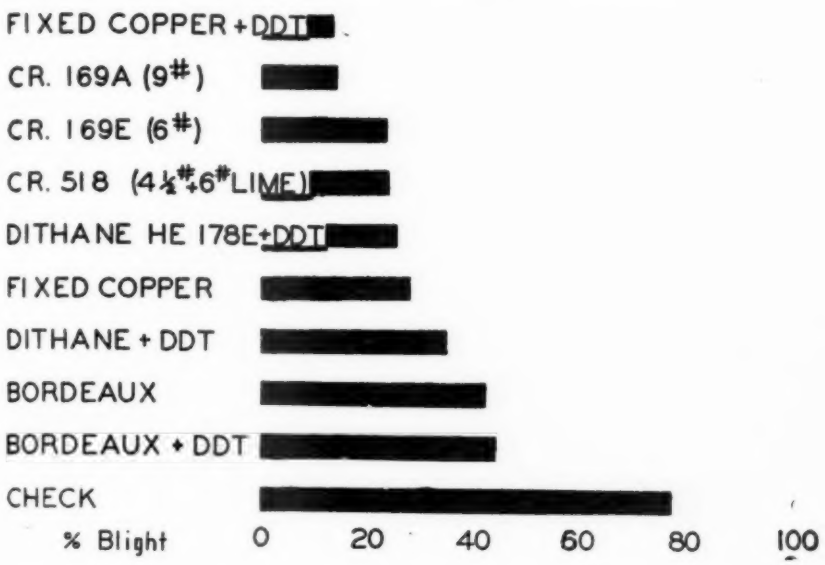
TABLE 5.—*Huttonsville* 1946.



In a test of 12 different fungicides in various combinations with and without insecticides, tribasic copper sulfate and certain exploratory chromate compounds gave the best results as shown in table 5. The fixed copper with DDT and Chromate 518 with lime gave the best yields with Chromates 169E and 169A close behind. The reaction product of Dithane and zinc sulfate gave better results than the Dithane. All of the treatments shown here gave yields significantly better than the check, but none of the treatments resulted in yields significantly greater than Bordeaux + DDT.

During July 1946, at Huttonsville, blight readings were taken and the data are recorded in table 6. These are an average of the readings of four observers on the entire replicated experiment. The ratings of the treatments by the percentage of blight in general follow the ratings according to the yield. In the blight ratings, however, there are statistically significant differences between Bordeaux + DDT and the

TABLE 6.—*Late blight—July* 1946, *Huttonsville.*



following treatments: Fixed Copper + DDT, Chromates 169E, 169A, 518, and Dithane HE 178 E + DDT.

DISCUSSION AND CONCLUSIONS

At Reedsville, in 1945, late blight started late in the season but was quite severe. In 1946 it again started late but never became severe. At Huttonsville in 1946 blight started early and was very severe. Dithane gave good protection against a mild attack of late blight and resulted in good yields at Reedsville in 1945 and 1946 in experimental plots and also in a larger field in 1946. At Huttonsville in 1946 it gave good results in experimental plots but was inferior to Bordeaux in a large commercial planting. This would indicate that Dithane is not adapted to the same conditions as Bordeaux in West Virginia, although it shows promise as a convenient protectant in some areas. It would probably be more acceptable in the form of the reaction product Dithane HE 178 E which gave better yields than Dithane and better protection in experimental plots and was also easier to handle and use.

The fixed copper (tribasic copper sulfate) with DDT and one of the exploratory chromates gave best results in the 1946 tests with 12 different materials. The chromate compounds, in addition to their fungicidal properties, on the basis of one year's results show some in-

secticidal properties aganst leafhoppers. The leafhopper population at Huttonsville in 1946, however, was light, and the materials should be tested under heavy infestations of leafhoppers to ascertain the extent of their insecticidal properties.

SUMMARY

1. In comparison with Bordeaux mixture plus DDT, in experimental plots in 4 tests in three different localities, Dithane plus DDT gave as good results in yield and protection against late blight.

2. In a large commercial planting in one year (1946) Dithane + DDT was inferior to Bordeaux + DDT in both blight protection and resulting yields.

3. Due to variation in climatic conditions, spray materials vary in their effectiveness in different localities in West Virginia.

4. The fixed copper (tribasic copper sulfate) and an exploratory chromate compound gave best protection and best yield results in a test of 12 different materials in 1946 in one locality.

THE INFLUENCE OF FERTILIZERS ON YIELD AND SPECIFIC GRAVITY OF POTATOES GROWN IN ALASKA

ZOLA M. FINEMAN*

University of Alaska Agricultural Experiment Station, Palmer, Alaska

In Alaska, high yields of potatoes are obtained only with the application of commercial fertilizers which supply the nutrient elements, nitrogen, phosphorus and potassium. The yield and cooking quality of potatoes grown in the Matanuska Valley are not so high as might be expected under the favorable climatic and soil conditions which prevail. Potato fertilizer recommendations for Alaska, in general, and the Matanuska Valley, in particular, are based on preliminary studies (1) (2). The recommended rates of nitrogen, phosphorus and potassium are based to some extent on the length of the growing season, type of soil, and the level of fertility maintained from year to year by crop rotation practices. Marked variations in cooking quality occur and attempts to associate them with environmental conditions and fertilizer practices are made. Recent studies have shown that fairly good estimates of

*Research Agronomist.

cooking quality from specific gravity readings are possible. To obtain information on the effect of different rates of nitrogen, phosphorus and potassium fertilizers on the yield and specific gravity of potatoes, the following study was made in 1945 at the University of Alaska Agricultural Experiment Station at Palmer, in the Matanuska Valley.

Materials and Methods

The soil of the field in which the test plots were planted is classified as a Knik Sandy Loam, is of loessial origin, and has been cropped for twenty-five years. The plots were planted with the most commonly grown local variety of potato, Arctic Seedling (apparently a type or strain of Green Mountain).

Nitrogen, phosphorus and potassium were supplied in the form of the commercial fertilizers, ammonium nitrate, superphosphate, and potassium chloride. These fertilizers contained approximately 30.0, 42.5 and 60.0 per cent respectively of nitrogen, phosphorus and potassium. The fertilizer treatments tested consisted of 27 possible combinations of 3 rates of nitrogen, phosphorus and potassium. Nitrogen was tested at the rates of 15, 30, and 45 pounds per acre. Phosphorus and potassium were tested at the rates of 30, 45 and 60 pounds per acre. The fertilizer was spread in the open furrow by hand and worked in with a wheel hoe. The plots were 1/300 of an acre (3½x41½ feet) in size. The seed pieces weighing approximately 1½ ounces were planted 18 inches apart. The plots were planted on the 21st of May and harvested on the 20th of September after the vines were killed by frost on the 6th of September.

The experiment was replicated four times and planted in randomized blocks. In addition to the 27 fertilizer treatment plots, each block contained 3 check plots (no fertilizer treatment).

Specific gravity readings were obtained by weighing at 25-30 pound sample of potatoes from each plot in air and in water, calculating the specific gravity from the formula:

$$\text{Specific gravity} = \frac{\text{Weight in air}}{\text{Weight in air} - \text{Weight in water.}}$$

Statistical analyses of the data were made by the analysis of variance method.

Yields

The mean yields of potatoes in bushels per acre of the 27 fertilizer treatments are given in table 1. A statistical analysis of these yields is

TABLE 1.—*Yields of potatoes grown with 27 rates of N-P-K fertilizers.*

Yields of Potatoes in Bushels per Acre Grown with the Indicated Pounds of N-P-K.

		Phosphorus 30 Lbs.			Phosphorus 45 Lbs.			Phosphorus 60 Lbs.		
		Potassium			Potassium			Potassium		
		30 Lbs.	45 Lbs.	60 Lbs.	30 Lbs.	45 Lbs.	60 Lbs.	30 Lbs.	45 Lbs.	60 Lbs.
Nitrogen	15 lbs.	322	359	363	336	328	352	351	335	370*
	30 lbs.	305	348	337	335	421	402	386	383	389
	45 lbs.	319	374	349	416	351	466	371	466	423

*For the 5 per cent level of significance, a difference of 28 bushels is required.

presented in table 2. The average yields for the three rates of nitrogen, phosphorus and potassium are shown in table 3.

TABLE 2.—*Analysis of variances of yields of potatoes grown with different rates of nitrogen, phosphorus and potassium fertilizers*

Source of Variation	Degrees of Freedom	Mean Square
N	2	14098*
P	2	18289*
K	2	8350*
N x P	4	5464*
N x K	4	1282*
P x K	4	1375*
N x P x K	8	17968*
Blocks	3	18200*
Error	78	386

*Significant difference

As shown in table 3, there were significant increases in yield with an increase in the rate of each fertilizer with the exception of the highest rate of potassium. Plots receiving 60K gave a slightly higher yield but not significantly so, than plots receiving 45K. Significant interactions for yield were obtained between the various rates of N, P and K. In general, these interactions resulted in an increase in yield with an increase in the rate of each element in the fertilizer. This is also indicated by the rather consistent increases in yield from top to bottom and from left to right in table 1. Some deviations may be noted, particularly among plots receiving 45N.

TABLE 3.—*Mean yields of potatoes in bushels per acre grown with three rates of nitrogen, phosphorus and potassium fertilizers.*

Rate	N	P	K
1	346	342	349
2	367	372	374
3	386	386	377

For the 5 per cent of significance, a difference of 9 bushels is required.

The average yield of the 27 fertilizer treatments of 366 bushels was considerably greater than the average yield, of 211 bushels, of the check plots (not included in the tables). These results indicate that there were marked responses to the nitrogen, phosphorus and potassium fertilizers.

TABLE 4.—*Specific gravities of potatoes grown with 27 rates of N-P-K fertilizers.*

Specific Gravities of Potatoes Grown with the Indicated Pounds of N-P-K Fertilizers per Acre.

		Phosphorus 30 Lbs.			Phosphorus 45 Lbs.			Phosphorus 60 Lbs.		
		Potassium			Potassium			Potassium		
		30 Lbs.	45 Lbs.	60 Lbs.	30 Lbs.	45 Lbs.	60 Lbs.	30 Lbs.	45 Lbs.	60 Lbs.
Nitrogen	15 lbs.	1.0742	1.0740	1.0745	1.0761	1.0800	1.0733	1.0821	1.0781	1.0778*
	30 lbs.	1.0753	1.0757	1.0706	1.0780	1.0755	1.0756	1.0772	1.0771	1.0731
	45 lbs.	1.0728	1.0714	1.0607	1.0753	1.0713	1.0738	1.0731	1.0772	1.0713

*For the 5 per cent level of significance, a difference of .0018 is required.

Specific Gravity

The specific gravities of the potatoes grown with the 27 fertilizer treatments are given in table 4. A statistical analysis of these specific gravities is presented in table 5. The analysis in table 5 indicates that there were significant differences in specific gravity of potatoes receiving the various rates of N, P and K. The mean specific gravities of the three rates of N, P, and K are given in table 6 and show that with each increase in the rate of N and K there was a decrease in specific gravity and that with each increase in the rate of P there was an increase in the specific gravity. The data in table 5 indicate that there were no significant interactions between the different rates of N and P, N and K, and P and K. Likewise, there were no significant interactions between the various rates of N, P and K.

Although there were no significant interactions between the different rates of N, P and K, various combinations of the different rates had an additive effect on the specific gravities. This is indicated by the data in table 4. It will be noted that the potatoes with the highest specific gravity (1.0821) were produced with the 15N-60P-30K fertilizer which had the lowest rate of N and K and the highest rate of

TABLE 5.—*Analysis of variances of specific gravities of potatoes grown with different rates of nitrogen, phosphorus and potassium fertilizers.*

Source of Variation	Degrees of Freedom	Mean Square
N	2	13174*
P	2	10014*
K	2	8015*
N x P	4	1311
N x K	4	236
P x K	4	386
N x P x K	8	2571
Blocks	3	33496*
Errors	78	1185

*Significant difference

P. The potatoes with the lowest specific gravity (1.0697) were obtained with the 45N-30P-60K fertilizer having the highest rate of N and K and lowest rate of P. These results might be expected on the basis of the individual effects of the different rates of N, P and K.

Dunn and Nylund (3) give a comprehensive review to date of the results of studies on the effect of N, P and K fertilizers on specific gravity of potatoes. The results with nitrogen fertilizers are variable.

TABLE 6.—*Mean specific gravities of potatoes grown with three rates of nitrogen, phosphorus and potassium fertilizers.*

Rate	Nitrogen	Phosphorus	Potassium
1	1.0767	1.0731	1.0760
2	1.0753	1.0754	1.0756
3	1.0729	1.0764	1.0733

For the 5 per cent level of significance a difference of .0006 is required.

Depending on the soil and climatic conditions, nitrogen fertilizers raised, lowered or had no effect on the specific gravity. Under the soil and climatic conditions of this study, there was a marked reduction in specific gravity with an increase in the rate of N. In general, phosphate fertilizers increase specific gravity. Potassium fertilizers, particularly those containing chlorides lower the specific gravity. The results of Dunn and Nylund (3) and Smith and Nash (4) indicate that it is the chloride anion in the potassium fertilizers which is responsible for the lowering of the specific gravity.

The increase in yield and decrease in specific gravity with an increase in the rate of N and K indicates a negative relation between yield and specific gravity for the rates of N and K tested. A possible explanation of this relationship may be the effect of N and K on tuber growth and storage. Data were obtained on the number and size of the tubers per plant with the different fertilizer treatments. There was very little difference in tuber number between fertilizer treatments. There were, however, marked differences in tuber size which were highly associated with differences in yield. Tuber size increased with each increase in rate of N, P and K.

The increase in tuber size with an increase in the rate of N and K was accompanied by a decrease in specific gravity. The decrease in specific gravity due to the potassium fertilizer has been explained by the adverse effect of the chloride anion. The reduction in specific gravity with higher rates of N may be due to the increased plant and tuber growth at the expense of starch storage.

Dunn and Nylund (3) and Scheele, Svensson and Rasmusson (5) found a very high correlation between specific gravity and dry matter. With the aid of the proper graph or regression equation, the dry matter content may be calculated from the specific gravity. Using the regression equation supplied by Dunn and Nylund (3) the dry matter content of the potatoes grown with different rates of N-P-K fertilizers was calculated. A dry matter content of 21.82 per cent was obtained for

the potatoes having the highest specific gravity (1.0821) and grown with the 15N-60P-30K fertilizer. A dry matter content of 18.42 per cent was calculated for the potatoes with the lowest specific gravity (1.0697) and grown with the 45N-30P-60K fertilizer. The first figure (21.82) represents an increase of 18.48 per cent in dry matter over the latter figure (18.42).

Summary

The yield and specific gravity readings were obtained for potatoes grown with 27 fertilizer treatments having different rates of nitrogen, phosphorus and potassium. The 27 treatments consisted of all possible combinations of three rates of nitrogen, phosphorus and potassium. Nitrogen was tested at the rates of 15, 30 and 45 pounds per acre. Phosphorus and potassium were tested at the rates of 30, 45 and 60 pounds per acre.

An increase in yield was obtained with each increase in the rate of nitrogen, phosphorus and potassium.

A decrease in specific gravity was obtained with each increase in the rate of nitrogen and potassium. The decrease in specific gravity with the potassium was attributed to the chloride anion.

An increase in specific gravity was obtained with each increase in the rate of phosphorus.

Marked differences in specific gravity were obtained between fertilizers having different rates of nitrogen, phosphorus and potassium.

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SECTIONAL NOTES

ALABAMA

The Alabama Commercial potato crop was planted between the 25th of January and the 15th of February. Baldwin County planted a total of 254 cars of seed—450 bags each. Figuring between 50 and 55 acres per car of seed, an estimated 13,000 acres have been planted. Other counties in the commercial area of Alabama have planted nearly 4,000 acres. This total planting is more than seemed likely a few weeks ago. The alleged frost damage to some of the Florida crop gave our growers, some of them, more gambling spirit. Most of the plantings are under the amount allotted to the grower for support price from the government.

The weather has been a factor in Alabama this year. December and early January were damp and warm almost like spring. The month of February is reported to have been the coldest in half a century. Although about 21 above zero was the lowest temperature, we have had several days with ice. Had it not been for this continued cold period during February, the potatoes would have emerged and been cut back by the temperature of 26 above which occurred on the 3rd of March. A survey indicated that very little damage was done because most of the sprouts are still an inch or more below the ground surface. The delay in emergence, by light of past experience, does not indicate that our crop will be much later than usual. The potatoes have a way of catching up and will be ready for harvest operations in approximately 90 days from the time of planting.

Plans are being made by the growers to either spray or dust their crop for control of Late Blight. Dithane will be used for spraying almost 100 per cent. In general Copper-hydro, Cuprocide, and C-O-C-S will be the dusts used. Dithane Z78 dust will be used on several plots, and DDT will replace arsenic for the control of the colorado potato beetles.

One hundred and eighty samples representing as many sources of seed were planted at the Gulf Coast Substation, Fairhope, Alabama. Besides this, nearly 20,000 seed pieces representing that many tubers have been planted for index readings. Another technical dust and spray experiment will be conducted to compare the value of leading spray and dust products. (Mar. 5).—FRANK E. GARRETT.

CALIFORNIA

It now appears that the potato acreage will be some where between

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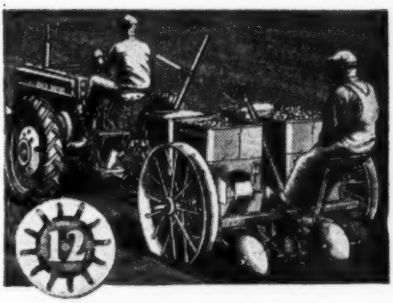

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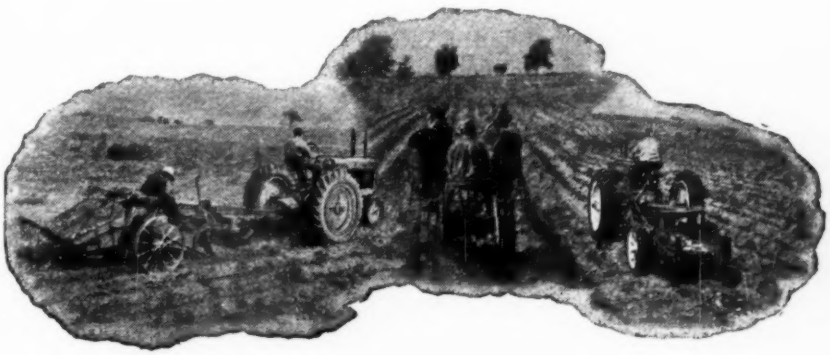

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45,000 and 50,000. No survey has yet been completed. This will be approximately 15,000 acres less to harvest in 1947 than were harvested in 1946.

Potato seed was plentiful this year. Many seed growers have had to dispose of their seed stock on the commercial market.

Potatoes in the early Edison District are now up to a good stand in many fields and growing rapidly. Harvesting will probably start about the middle of April. The exact date that harvest will begin will depend upon two factors, yield and price. If the price is high, the growers may start digging with a low yield. If the price is not very high, the growers will probably delay a start of harvest until a later date. (Mar. 4).—M. A. LINDSAY.

IDAHO

The potato market has been very draggy, but many dealers feel that the supply of good quality table stock potatoes in Idaho is rapidly reaching the end that within two or three weeks some communities will be pretty well cleaned up. Within six weeks most of the good table stock will be shipped. They anticipate considerable less stock shipped and a much earlier clean-up than last season. The diversion program has had a big influence on the supply as has also, in general, the poorer keeping quality of the crop this year.

Readings from the winter tests from the seed potato plots are practically complete and indications are that not more than one-third as many lots will be rejected as ineligible for re-certification as compared with last year. This emphasizes the value of the winter test plots in reducing virus disease in the certified seed lots. It also refers particularly to mosaic since leafroll has not as yet appeared in the principal certified seed-producing areas of the state.

Indications point toward a larger percentage of the commercial acreage to be planted with certified seed and the general abandonment of the growing of seed plots for "one year out of certified seed" in the Boise Valley area where leafroll has been a factor in the commercial potatoes. Seed surplus seems to be ample but supplies are not nearly so large as production figures would indicate, first, because a considerable part of the seed being sorted out and sold as bakers for table stock; and secondly, to the frost injury in the fall which prevented harvest of approximately 5 per cent of the certified seed acreage and lowered the keeping quality of much that was harvested.

Growers indicate a considerable shift to sugar beets and beans, par-

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ticularly in southwestern and south central Idaho, with a corresponding reduction in potato acreage for 1947. (Mar. 4)—JOHN R. ROBERTSON.

INDIANA

All is rather quiet on the potato front here in Indiana, except the seed situation. There is going to be quite a scramble for good certified seed this year and particularly by our small growers for both Sequoia and Sebago seed. It seems as if there is going to be a considerable shortage of those two varieties this year in our state. The results of many demonstrations in the state have been so gratifying that the newer varieties are replacing the older strains. The Irish Cobbler and the Katahdin will also have a place on the mineral and upland soils and a few will continue to plant those varieties.

The acreage in Indiana this year will be above normal and practically all of it will go for local consumption. (Mar. 3)—W. B. WARD.

MAINE

Maine and the potato industry, in general, have been getting some very unfavorable comments largely because of the disposal program for surplus spuds. Unjustly, Maine believe about 90 per cent of Arrostook farmers took loans which assured them price support. Maine has exported approximately 3 million bushels and expects to export an additional 5 million. The industry has long advocated the export of surplus potatoes, but not until ex-President Hoover made his recent report on the food situation in Europe has there been much action.

Aroostook has dumped approximately 3 million bushels of potatoes, which were under special loan and approximately 7½ million bushels of the regular loan potatoes. All of these potatoes were deteriorating or were endangering other potatoes. About 6 million bushels have gone into starch and alcohol, with possibly an additional 3 million. The dumping program ended the 5th of March with export business opening in volume. The export deal is largely responsible for the market going slightly above support prices for the first time in the marketing season.

It is expected that farmers will receive their potato allotments by the 15th of March. Aroostook received 166,000 of the 186,000 acre State allotment. Farmers are accepting the fact that acreage allotment must be a part of the price support program and will go along with the program.

Maine has more good seed potatoes than ever before in its history. The Florida test showed that seed plot methods and DDT resulted in the production of excellent seed. For instance, 59 per cent of all Chippewas

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This 19-minute 16mm sound color film outlines the growing of seed potatoes from planting to shipping. Cutting and disinfection of seed, preparation of soil and use of fertilizers, crop rotation, cultivation, spraying and dusting, digging, storage, grading and packing are treated. Scientific research on potatoes and the work of the seed certification service are emphasized. The film was produced by the National Film Board of Canada for the Department of Trade and Commerce and the Department of Agriculture.

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read less than 2 per cent in Florida. The figures for the 1945 crop were 22 per cent less then 2 per cent. Seed is moving slowly at present. (Mar. 6).—VERNE C. BEVERLY.

NEBRASKA

The most hectic potato season in years is almost completed. Much of the low grade stock is being dumped, in line with Government support program. Most of the better quality stock has been shipped at this time. Certified shipments are still continuing, but at a decreased rate. Very little Blue Tag Certified is left in the country at this time.

As was anticipated earlier, considerable grading difficulties arose. Since most of our acreage consists of the Triumph variety, which is very susceptible to cracking at harvest time, many growers had trouble making U. S. No. 1 Grade. In most sections of the state, when a tuber defect was severe enough to throw out of U. S. No. 1 Grade, it was also too severe for U. S. No. 2.

The high sort-out percentage, and the high price of labor for the crop has done much to cause discussions on acreage for 1947. Most growers feel that they will cut acreage considerably. Others feel that since all the neighbors are going to cut acreage, that they will increase theirs, so at the present time, it is hard to make a prediction on acreage for certification this year. The over-all picture will probably see a reduction, both on certified acreage and the commercial acreage.

Moisture conditions on dry land are not ideal. Much of the moisture for this type of farming comes with winter snows. The snows have not been present this season. Unless more moisture is received in the next few months and a wet summer is experienced, the yield on dry land potatoes for this coming year is liable to be small.

Growers' meetings have been held throughout the territory by the Extension Department of the University. These meetings have been very poorly attended, which further substantiates the lack of interest on the part of growers with regard to potatoes at this time. (Mar. 3).—J. J. SHAUGHNESSY.

NEW YORK

The local demand for potatoes is very strong and prices are at the basis of support which is $2.40 cwt. The local demand is accentuated by the shortage of cars in other sections which has added temporarily to reduced imports. The present weather conditions will still further curtail supplies and after another day or so there will be a big demand for potatoes that are accessible to nearby markets.

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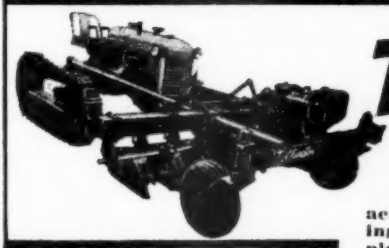

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Seed potatoes are beginning to be in demand now that acreage allotments and more or less of a government program has been announced for 1947. Up state New York was cut about 10 per cent and Long Island about 20 per cent. The demand is greater this year than in past seasons for Katahdins.

Potato growers generally are appreciative of the condition the potato industry is in and will have some system of marketing which will keep the better grades going to market and the poorer grades at home. There is a strong sentiment for marketing agreements or something of that nature. It is a well known fact that unless some means is provided for utilizing low grades and off sizes that they will eventually find a market, so it has been suggested in several instances that government support may be utilized to establish facilities for making starch, potato flour, etc. The thought is that these funds could be amortized over a long period to a person or group of persons and the ultimate effect would be very beneficial to the industry as a whole. (Mar. 4).—H. J. EVANS.

PENNSYLVANIA

Certified seed potatoes are being removed from storage in better shape than was expected when they were placed in storage last fall. Although there is some rot, it is not so serious as was expected. Because of the large crop, the tubers are rougher and there are more over-sized tubers than usual. The percentage of grade-outs is running quite high.

The demand for seed is very poor. A number of table stock growers have expressed intentions of cutting their acreage during 1947. There is some feeling that the price prospects for 1947 are somewhat discouraging because of the continued scarcity and high cost of labor, machinery and other items that go into the production of a crop of potatoes. (Mar. 3.)—K. W. LAUER.

SOUTH CAROLINA

The acreage allotment for South Carolina early potatoes is only slightly less than that of last year. Most growers have tried to stay within their allotments, hence we expect a 6-8 per cent decrease in total acreage.

Planting began from three to five days earlier than usual because of excellent weather conditions. Almost one-half of the crop was planted before the freezing began on the 5th of February. All plantings were completed by the end of the third week in February. Part of the late plantings went into rather dry soil and some dry rot may be evident. One-half inch of rain fell on the 1st of March and the soil is now in good con-

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dition. The earliest plantings have sprouts ½ inch long, hence will probably not emerge before the 20th of March even though temperatures return to normal. Our area is below normal in rainfall which should assure good stands. The variety picture has been changed only slightly this year. Sebago acreage has increased while Pontiac decreased somewhat. Estimated plantings in Charleston County which contain about one-half the total state acreage were obtained by tabulating seed sold by local brokers. They are as follows: Bliss Triumph 1 per cent, Pontiac, 11; Cobbler, 38; Katahdin, 32; Sebago, 16; and White Rose 2 per cent. The state average would probably run as follows, Bliss Triumph, 5 per cent; Pontiac, 10; Cobbler, 40; Katahdin, 30; Sebago, 14; and White Rose 1 per cent.

Charleston County growers and shippers are investing $250,000 in washing, grading and drying equipment for the approaching season. It is thought that this will be adequate to handle about one-half the potatoes in this county.

The railroads are attempting to take away our shippers privilege of refrigeration in transit. A hearing before the I.C.C. will be held on the 9th of April. If the refrigeration privilege is withdrawn, our washing program will receive a real blow as washed new potatoes need refrigeration to prevent soft rot in transit. (Mar. 5).—W. C. Barnes.

Vermont

Indications point to approximately the same acreage planting in Vermont this spring as for 1946. Latest revised estimate for this was somewhat over 8000.

Owing to the slight premium available for certified seed compared with table stock and stable stock, to apply the most obvious term to government purchased stock, much of the 1946 certified seed crop in Vermont has been allocated for non-seed use. The difference between the cost of used bags in which the commercial pack could be moved, and new bags required for seed, usually more than off-set the small premium offered.

Starting in a small way to build up safe foundation stock, a basic plot of one acre was grown under supervision of the State Department of Agriculture and the Agricultural Experiment Station by W. A. Willard of Derby. The plot was all tuber-unitted, carefully rogued and was early harvested about the 10th of August by top pulling. A sample in Florida showed 0.3 per cent leafroll and no other disease, the variety of which was Green Mountain. It is hoped that the crop of approximately 200 bushels will be increased this year by growers operating

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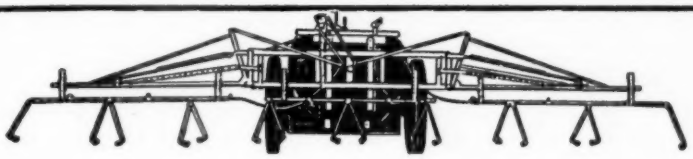

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under new foundation stock rules set up by the Department. This basic crop plan was financed by the so-called Merck fund, $500 provided by George W. Merck of Rupert, Vermont, and New York.

The potato session in the Union Agricultural Meetings held in Barre, from the 11th to the 14th of February was particularly well attended. Guest speakers were Ford S. Prince of New Hampshire University and Dr. R. J. Haskell of the U. S. Extension Service, Washington, D. C. The selection of varieties, ring rot and leafroll control were chief topics of discussion. (Mar. 6).—HAROLD L. BAILEY.

WASHINGTON

The Washington winter test plots at Oceanside, California, were read from the 23rd to the 26th of February. The results of the readings give our growers many indications that they have overcome the serious disease problems which they encountered during 1944 and 1945.

In the case of our White Rose 46 per cent of the fields certified in the State of Washington showed less than one per cent total virus, and eighty-five per cent showed less than 4 per cent total virus.

In the case of our Gems where the leafroll problem was being considered hopeless by many during 1944 and 1945, 49 per cent of the certified Gems contained less than one per cent total virus and eighty-eight per cent contained less than 4 per cent.

Since we still had a few blow-ups it might indicate that conditions necessary for such were present. It might further indicate that the great improvement over previous years was made primarily because of the adoption of new practices. In checking back on the seed stocks used last year we found that the blow-ups referred to were in fields which were planted with seed stock containing a higher proportion of total virus. We found no case where it was impossible to ascertain the reason for the resulting excessive amount of virous disease.

We feel the major reasons for the great improvement this last year were: first, planting of much cleaner seed stocks; secondly, more thorough roguing; thirdly, the use of DDT dust to control the aphid population, and fourth, early killing of vines with various chemicals.

All indications point towards a reduction in our seed acreage for the coming year. (Mar. 6).—HAROLD S. SCHAAD.

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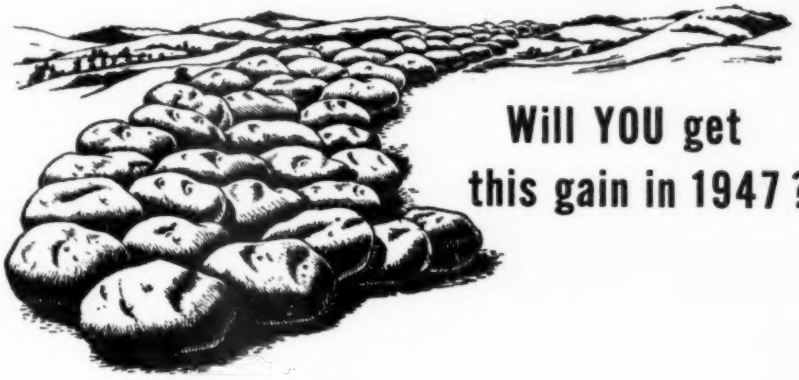

Will YOU get this gain in 1947?

Last year, DDT definitely proved itself as an effective agent for controlling infestations of the Colorado Potato Beetle, Potato Flea Beetle and Potato Aphid. Tests conducted at Federal and State Experiment Stations, as well as actual crop figures, indicated an average potato yield increase of *25 barrels per acre* through control of these insect pests.

A Penco DDT program this year will help you show substantial increases, too. Penco DDT compounds are made by Pennsalt—a leading basic producer of DDT—are high-quality, dependable, *proven* in actual use. Let your Penco Distributor assist in selecting the right formulation, and the proper application of DDT for real results. See him today.

PENCO DDT PRODUCTS

Penco WB-50
—for water suspension sprays

Penco Emulsion Concentrate
—for water emulsion sprays

Penco Cattle Spray
—for livestock and barn sprays, and livestock dips

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PENNSYLVANIA SALT MANUFACTURING COMPANY
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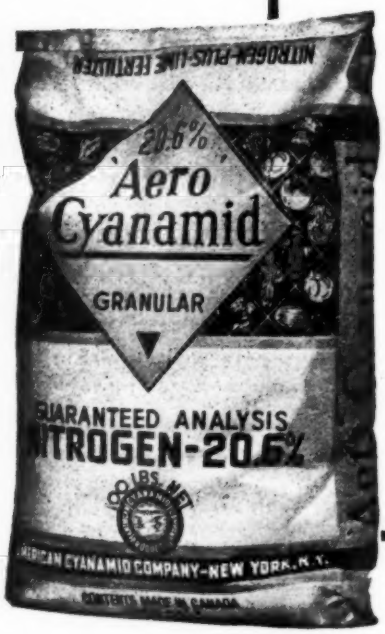
Here is good CROP INSURANCE

High production makes profits...and 'Aero' Cyanamid plowed under this spring is sure-fire crop production insurance.



For all vegetable crops and corn, beans, etc., plowing 'Aero' Cyanamid under improves quality as well as quantity of yield. It makes cover crops more valuable for building humus, and it maintains a desirable calcium balance in the soil. 'Aero' Cyanamid: 20.6% nitrogen; 70% hydrated lime.

Write for free folder "More Humus Faster", **AMERICAN CYANAMID COMPANY** (Agricultural Chemicals Division), 30 Rockefeller Plaza, New York 20, N. Y.

'AERO' Cyanamid

AGRICULTURE'S MOST USEFUL FORM OF NITROGEN

MODEL PB-3 WEED BURNER

The Model PB-3 is here shown in use in potato fields. Used to destroy green immature vines it permits harvesting operations without waiting for normal maturing of vines or their elimination by killing frost.

Vegetation which has accumulated after cultivating is no longer possible, is completely eradicated and permits efficient digger operation. Clean fields result in fewer potatoes being lost as they can easily be seen by pickers.

The use of the Model PB-3 is not restricted to the burning of potato vines as it can be used wherever weed eradication is necessary.

At a speed of 5 m.p.h. the Model PB-3 consumes 18 gallons of fuel oil per acre and burns 4 rows or a swath 15 feet wide on each trip.

References by potato growers using the Model PB-3 furnished on request. They will give you their actual experience with the use of this machine.

WOOLERY MACHINE COMPANY

Pioneer Manufacturers of Open Flame Type Weed Burners

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Keep good potatoes better

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DOW SPROUT INHIBITOR

Dow Sprout Inhibitor offers potato growers, potato distributors and dehydrators, and potato product manufacturers an effective means of stopping or greatly reducing the economic loss caused by the sprouting of potatoes in storage. Higher storage temperatures can be maintained to keep the sugar content of the stored potatoes at a minimum, and, with most varieties, sprouting is so well controlled that crops stored through the winter have the quality, weight, and general appearance of new potatoes. Dow Sprout Inhibitor has also proved effective in reducing sprouting and shrinkage of stored rutabagas, turnips, carrots and beets. Available in dust or liquid form . . . with directions for application on each container. For full information, see your county agent, state experiment station—or write direct to Dow for free literature. Ask also about Dowspray 66—the "artificial frost" that kills potato vines to spread the harvest season and prevent clogging of diggers. And Dow DDT Formulations to control common insect pests of the potato plant.

PROTECT QUALITY—WEIGHT—APPEARANCE!

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How much EXTRA MONEY would you make if you raised 75% more potatoes per acre?

"Because of the late start of my wet-spray program, only three applications of your Gesarol DDT were made, starting about August 1st. Notwithstanding the date of the first application the yield approximated 140 bbls. per acre to compare with about 80 bbls. per acre where none of your material was used."

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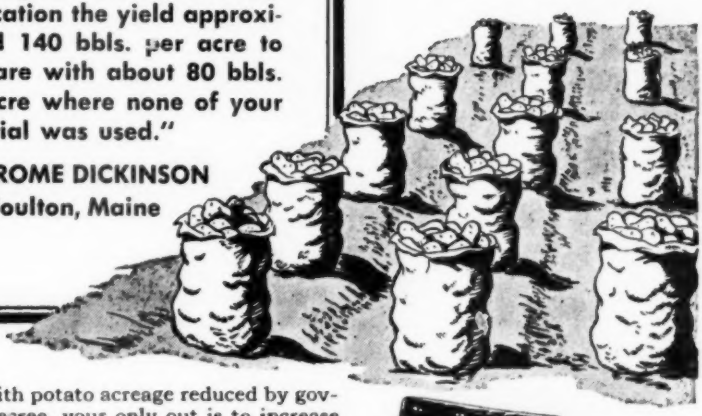
Houlton, Maine



This year, with potato acreage reduced by governmental decree, your only out is to increase your yield per acre.

GESAROL* DDT Compositions — as past experience shows — can be counted on to do just that!

Geigy — "*Originators of DDT Insecticides*", offers you these 3 highly effective products for the control of potato pests.

GESAROL E 25 an *emulsifiable* DDT solution used in making sprays.

GESAROL AK 50 a 50% DDT *wettable* powder used in making sprays.

GESAROL VD 50 a 50% DDT powder used by your processor in making 3-5% DDT dusts.

If these tried-and-proven Geigy products are not available locally, send in your dealer's name and address.

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NOTHING NEW

There is nothing new in the successful growing of potatoes. Good seed, proper cultivation, efficient fertilization, and thorough spraying to insure high yield and quality are as important as ever.

Use a recommended high-potash complete fertilizer. Potatoes are greedy feeders on potash. They use more of this plant food than nitrogen and phosphoric acid combined. Before the planting season, far-sighted growers check up on what their soils will supply and then make sure that the fertilizers they apply contain enough potash to carry the crop through. For a high yield of No. 1's there must be at least 200 lbs. of actual potash (K_2O) per acre available to the growing plants. On heavy potato soils extra profits may follow the practice of plowing under one-half of the fertilizer, with the remaining half applied in bands at planting time.

Consult your agricultural adviser about the fertility of your soils. See your fertilizer dealer or manufacturer. You will be surprised how little it costs to apply enough potash to insure greater returns from your potato crops.

Write us for additional information and free literature on the profitable fertilization of your crops.

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